

Annexure 1 – Technical Tender Conditions

NHSRCL Train B28 Project EMI/EMC Type test for HSR Rolling Stock

Intended vendor should be a reputed service provider in the field of EMI/EMC Testing of High-Speed Rail (HSR) Rolling Stock as per European (EN) standards. Company profile and the infrastructure & experience details shall be submitted by the vendor during tender stage.

The vendor shall provide all the required documents to prove their expertise and for obtaining the vendor approval from BEML/Nominated Agency (NHSRCL). Test Agency credentials (Accreditation, Testing Equipments, Experience) are subject to BEML/ Nominated Agency (NHSRCL) approval.

The intended vendor should fulfill the following requirements and shall submit the relevant applicable documents as part of tender submission.

1. The testing agency shall have proven experience record of conducting such tests in at least 3 projects in the last 10 years for Rolling Stock designed for 250 kmph or above at onsite Location (Depot & mainline).
2. Test Agency shall comply to BEML Test Specification **FPIIC/TD/086, Rev 0**, and shall submit detailed clause by clause compliance as part of Technical package of the Tender and relevant documents if any.
3. Test agency shall provide the Test Campaign schedule, Test Apparatus details with datasheet and any other relevant technical details as part of the Technical package of the Tender.
4. Test Agency shall have required accreditation of EMI/EMC type test standards as per BEML EMI/EMC Test Specification **FPIIC/TD/086, Rev 0** shall submit the copy of the same as part of Technical package of the Tender.
5. Preference may be given to Test Agency, who shall be capable of conducting all the EMC Type tests as per table (refer section.11) of BEML EMI/EMC Test Specification **FPIIC/TD/086, Rev 0**.
6. All components on the Cars shall be designed and constructed to fulfil the requirements of EN 50121-3-2. The complete Train shall meet the requirements of standard EN 50121-3-1.
7. General Standards:
8. Railway applications - electromagnetic compatibility - Part 3-2: rolling stock – apparatus - EN 50121-3-2/ IEC 62236-3-2 and
9. Railway applications - electromagnetic compatibility - Part 2: emission of the whole railway system to the outside world EN 50121-2/IEC 62236-2
10. Interference Test:
Tests to determine the levels of interference with traction power supply, signal and telecommunication equipment and facilities to prove that these are within acceptable limits in accordance with the Specifications and Standards.
11. Pacemaker Interference Test:
This shall include test to verify that any emissions from the equipment of Train do not adversely affect the pacemakers/ hearing aids that may be used by the passengers. Test shall be conducted as per EN 45502 and EN 50500.
12. Test Agency shall have all the required Test Setup/equipment's as per BEML EMI/EMC Test Specification **FPIIC/TD/086, Rev 0** duly calibrated for the test period, shall submit the details of the

same as part of Technical package of the Tender.

13. The Testing Agency shall submit detailed test procedures, measurement methodology, instrumentation details and proposed acceptance criteria along with the Technical Bid. The proposed test procedure and acceptance criteria shall be reviewed and mutually agreed between the Train Operator and BEML prior to commencement of testing..
14. For type testing work, Test Agency shall bring all Test instruments/set up to Surat/Mainline MAHSR corridor, India and for executing the EMI/EMC Type Test.
15. Power Supply for Instrumentation: Single phase 230V AC, 50 Hz will be available at test site. Testing agency shall arrange the required UPS (Uninterruptible power supply) and Power convertors (if any needed) suitably as per their Instrumentation requirement.
16. During/after the tender, Test Agency shall follow opinion of design team of BEML/Nominated Agency/Purchaser/Design Verifier/Propulsion & Electrics Supplier. In case of any conflict or ambiguity, BEML/Nominated Agency/Purchaser/Design Verifier/Propulsion & Electrics Supplier decision shall be final and binding.
17. EMI/EMC Test Specification approval is under progress with customer. If any comments from Customer, same need to be addressed by testing agency.
18. Preliminary Test report to be submitted by testing agency immediately upon the Completion of test.
19. Testing Agency shall identify the suitable locations on the available sections of MAHSR corridor where the tests have to be conducted.
20. Schedule:
 - a) Submission of test Procedure – 2 weeks from PO.
 - b) Conducting tests as per EMI/EMC test Procedure – Schedule will be intimated by BEML (Tentatively between April 2027 and August 2027).
 - c) Submission of preliminary test report – 1 week from test completion.
 - d) Submission of detailed test report – 2 weeks from test completion.
21. Vendor shall submit the below details as part of Technical Bid requirement.
 - i. Clause by clause compliance for BEML Document **FPIIC/TD/086, Rev 0.**
 - ii. Clause by clause compliance for Technical Tender Conditions (Annexure 1).
 - iii. References & details on Successful completion of EMI/EMC Type Tests in at least 3 projects in the last 10 years for Rolling Stock designed for 250 kmph or above at onsite Location (Depot & mainline).
 - iv. Detailed list and datasheet of Instrumentation for EMI/EMC Type Test.
 - v. Detailed proposed day wise Test program including the timeline for Test pre requisites.
 - vi. Details on accreditations of EMI/EMC Type Test standards.
 - vii. Technical proposal for performing EMI/EMC Type test as per BEML Document **FPIIC/TD/086, Rev 0.**
 - viii. Company Profile.
 - ix. Any other details deemed as necessary for Technical Evaluation of Vendor proposal.
